

# Work Order ID 59371

Wednesday, June 02, 2010 1:19:40 PM

Page 1

Item ID: D350-636-012

Accept

Revision ID:

Item Name: Skidtube RH

Start Date: 6/2/2010 Start Qty: 1.00

Required Date: 6/9/2010 Req'd Qty: 1.00

Reference:

Approvals:

Process Plan:

Date:

Tooling:

Date:

QC:

Date:

SPC (Y/N):

Date:

Setup Start

Stop

Run Start

Stop

Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
--------------------------------	--------------------------	----------------------	---------	--------	--------------	---------------	---------------	------------------	----------------

Draw Nbr

Revision Nbr

D2750

Rev F

0.00

100



DC

Document Control

DOCUMENT CONTROL

Memo

Photocopy blue file and type labels per PPP D350-636-012 CHG 005

0.00

S. J. 6/1/14

B59371

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: \_\_\_\_\_ PAR #: \_\_\_\_\_ Fault Category: \_\_\_\_\_ NCR: Yes No DQA: \_\_\_\_\_ Date: \_\_\_\_\_

Resolution: \_\_\_\_\_ Disposition: \_\_\_\_\_ QA: N/C Closed: \_\_\_\_\_ Date: \_\_\_\_\_

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
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**NOTE:** Date & initial all entries

**Work Order ID 59371**

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Item ID: D350-636-012

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Setup Start



Revision ID:

Stop



Item Name: Skidtube RH

Start Date: 6/2/2010 Start Qty: 1.00



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Required Date: 6/9/2010 Req'd Qty: 1.00



Customer:

Reference:

Run Start



Approvals: Process Plan: \_\_\_\_\_ Date: \_\_\_\_\_ Tooling: \_\_\_\_\_ Date: \_\_\_\_\_

Stop



QC: \_\_\_\_\_ Date: \_\_\_\_\_ SPC (Y/N): \_\_\_\_\_ Date: \_\_\_\_\_

Sequence ID/  
Work Center IDOperation  
DescriptionSet Up/  
Run HoursTool ID Tool# Plan  
CodeAccept  
QtyReject  
QtyReject  
NumberInsp.  
Stamp

110



Skidtubes

Skidtubes

Skidtubes

0.00

0.00

**Memo**

1- Mark cut line on aft end of D2600-3-Bent using Jig DT 8150. Cut to length as per Dwg D2750. Deburr end

2-Drill pilot holes as per Dwg D2750 sheet 5 (D2750-2 details).Drill using drill Jig DT8150 &amp; DT8863 .

3- Mark fwd end for cutting using Drill Jig DT 8150 &amp; DT8863 and cut as per dwg D2750. Deburr.

4- Drill fwd step holes using DT9616. Ensure proper positioning.

5-Drill pilot holes for blade fitting bolts using DT8983. Open to 0.500"

6- locate DT8329 off of blade fitting bolt holes and drill pilot holes blade fitting.

7-Open up holes for Detail K to 0.375" (4 holes per side) blade fitting location holes to 0.500" (total of 4 holes per side) as per dwg D2750. Open holes for ground handling and detail L to 0.500" (8 holes per side)

8-Drill pilot holes for wearplates as per Dwg D2750 using DT8108. Open to 0.297".

9-Open up holes of Detail J to 0.297" (total of 2 holes per side)

10-Weld D2744 Cap as per Dwg D2750 and QSI 004.Fill grooves in bend left from bending as per QSI 004

A/R Aluminum Rod

Batch:

M114242

BE 10/06/11

W/O:		WORK ORDER CHANGES						
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QC: \_\_\_\_\_ Date: \_\_\_\_\_ SPC (Y/N): \_\_\_\_\_ Date: \_\_\_\_\_

Setup Start

Stop

Run Start

Stop

Sequence ID/  
Work Center IDOperation  
DescriptionSet Up/  
Run Hours

Tool ID

Tool # Plan  
CodeAccept  
QtyReject  
QtyReject  
NumberInsp.  
Stamp

11-Grind welds flush as per Dwg D2750

12- scribe batch #.

3 BE 12/06/14

120



QC

Quality Control

QC10- Inspect visual per QSI004- ground welds

0.00

8 10/06/15

Memo

0.00

130



QC

Quality Control

QC5- Inspect part completeness to step on W/O

0.00

8 10/06/15

Memo

0.00

40

W/O:		WORK ORDER CHANGES						
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QC: \_\_\_\_\_ Date: \_\_\_\_\_ SPC (Y/N): \_\_\_\_\_ Date: \_\_\_\_\_

Setup Start

Stop

Run Start

Stop

Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
140  HandFinish Hand Finishing	Chemical Conversion Coat per QSI005 4.1  Memo	0.00  0.00							
150  QC Quality Control	QC3- Inspect Part Finish  Memo	0.00  0.00							

DA 10-6-15

1 10/6/15

W/O:		WORK ORDER CHANGES						
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Setup Start



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Stop



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Cust Item ID:

Required Date: 6/9/2010 Req'd Qty: 1.00



Customer:

Reference:

Run Start



Approvals: Process Plan: \_\_\_\_\_ Date: \_\_\_\_\_ Tooling: \_\_\_\_\_ Date: \_\_\_\_\_

Stop



QC: \_\_\_\_\_ Date: \_\_\_\_\_ SPC (Y/N): \_\_\_\_\_ Date: \_\_\_\_\_

Sequence ID/  
Work Center ID

Operation  
Description

Set Up/  
Run Hours

Tool ID

Tool #

Plan  
Code

Accept  
Qty

Reject  
Qty

Reject  
Number

Insp.  
Stamp

160



Skidtubes

Skidtubes

0.00

Memo

0.00

Skidtubes

1-Open up holes of Detail L and ground handling to 0.625" (total of 8 holes per side) as per dwg D2750.

2-Open up holes of Detail K to 0.750" (total of 4 holes per side) as per dwg D2750.

3-Open float holes to .500" (4 per Side)

4-Chamfer holes of Detail K, L, ground handling and float holes per dwg D2750 (welding instructions on sheet 9)

5-Deburr and blow out all chips from inside of tube

6-Prepare tube for welding, remove alodine as required.

7-Bond web D2739 in place as per OSI 015

A/R ☐ Sikaflex-291 batch: 0113519 ☐ ☐  
exp. date: 01/11/32

8- Weld spacers D3490-1, D3490-3 and D2743 as per dwg D2750 & OSI004 (welding instructions on sheet 9)

A/R ☐ Aluminum Rod batch: M114242

9- At section AP-AP drill out x-bolt spacer to 0.404"

10-Grind welds flush as per Dwg D2750

11-Spot face ground handling holes section (total of 4 places per side) as per

11/16/15

BE 10/06/16

BE 10/06/16

10-6-16

W/O:		WORK ORDER CHANGES					
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Setup Start

Revision ID:

Item Name: Skidtube RH

Stop

Start Date: 6/2/2010 Start Qty: 1.00



Cust Item ID:

Required Date: 6/9/2010 Req'd Qty: 1.00



Customer:

Reference:

Approvals: Process Plan: \_\_\_\_\_ Date: \_\_\_\_\_ Tooling: \_\_\_\_\_ Date: \_\_\_\_\_  
QC: \_\_\_\_\_ Date: \_\_\_\_\_ SPC (Y/N): \_\_\_\_\_ Date: \_\_\_\_\_

Run Start

Stop

Sequence ID/  
Work Center ID

Operation  
Description

Set Up/  
Run Hours

Tool ID

Tool #

Plan  
Code

Accept  
Qty

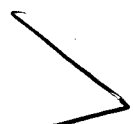
Reject  
Qty

Reject  
Number

Insp.  
Stamp

dwg D2750

12-Debur holes



DP 10-6-16

0.00

QC10- Inspect visual per QSI004- ground welds

0.00

Memo

8/10/07/01

170



QC

Quality Control

180



QC

Quality Control

QC5- Inspect part completeness to step on W/O

0.00

testo DADDO on 10/6/17  
Memo  
Sud

0.00

8/10/07/01

10

W/O:		WORK ORDER CHANGES						
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Reference:

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Customer:

Approvals:

Process Plan:

Date:

Tooling:

Date:

QC:

Date:

SPC (Y/N):

Date:

Run

Start

Stop

Sequence ID/  
Work Center ID

Operation  
Description

Set Up/  
Run Hours

Tool ID

Tool #

Plan  
Code

Accept  
Qty

Reject  
Qty

Reject  
Number

Insp.  
Stamp

190

Pressure Wash per QSI005 4.3

0.00

HandFinish

Memo

0.00

Hand Finishing

Re-alodine tube as per QSI 005 section 4.1.2.1 do not acid etch.

1

BR 10-7-8.

200

White Gloss(Ref:4.3.5.1) per QSI005 4.3-Alum

0.00

Powdercoat

M 114841

0.00

Powder Coating

Memo

START TIME: 11:15  
OVEN TEMPERATURE: 320°  
FINISH TIME: 11:45.

1

BR 10-7-8.

210

QC3- Inspect Part Finish

0.00

QC

Memo

0.00

Quality Control

Inspect for foreign object per QSI 024

=> 10/07/13

1

0

W/O:		WORK ORDER CHANGES					
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Part No: \_\_\_\_\_ PAR #: \_\_\_\_\_ Fault Category: \_\_\_\_\_ NCR: Yes No DQA: \_\_\_\_\_ Date: \_\_\_\_\_

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Customer:

Approvals: Process Plan: \_\_\_\_\_ Date: \_\_\_\_\_ Tooling: \_\_\_\_\_ Date: \_\_\_\_\_

QC: \_\_\_\_\_ Date: \_\_\_\_\_ SPC (Y/N): \_\_\_\_\_ Date: \_\_\_\_\_

Run Start

Stop

Sequence ID/  
Work Center IDOperation  
DescriptionSet Up/  
Run Hours

Tool ID

Tool #

Plan  
CodeAccept  
QtyReject  
QtyReject  
NumberInsp.  
Stamp

220



HandFinish

Hand Finishing

HandFinishing

Memo

Install inserts as per dwg D2750

0.00

0.00

10/07/13

x1 0

230



HandFinish

Hand Finishing

HandFinishing

Memo

1-Inspect for Foreign Objects

2-Spray inside of tube with "LPS-3"

batch: D1A

3-Install blade fitting D3488-042, wearshoes and ground handling hardware as per dwg D2750

SIKA FLEX 241

BATCH: M113519EXP DATE: 10/44-assemble o-ring to plug as per dwg D3492 and apply o-ring lube  
A/R 55-o-ring lube batch: M1141895-Coat all exposed fasteners with "LPS Procyon"  
batch: M1104251

0.00

0.00

10/07/13

x1 0

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QC: \_\_\_\_\_ Date: \_\_\_\_\_ SPC (Y/N): \_\_\_\_\_ Date: \_\_\_\_\_

Setup Start

Stop

Run Start

Stop

Sequence ID/  
Work Center IDOperation  
DescriptionSet Up/  
Run Hours

Tool ID

Tool #

Plan  
CodeAccept  
QtyReject  
QtyReject  
NumberInsp.  
Stamp

240

QC5- Inspect part completeness to step on W/O

0.00

8/10/07/13



QC

Memo

0.00

Quality Control

250

Pick Kit

0.00



Packaging

Memo

0.00

Packaging

10-7-9 SP

260

QC4- 100% Inspect kits for completeness

0.00



QC

Memo

0.00

Quality Control

8/10/07/14

W/O:		WORK ORDER CHANGES						
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Stop

Run Start

Stop

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Sequence ID/  
Work Center IDOperation  
DescriptionSet Up/  
Run Hours

Tool ID

Tool #

Plan  
CodeAccept  
QtyReject  
QtyReject  
NumberInsp.  
Stamp

270



Packaging

Packaging

0.00

Memo

0.00

Package as per PPP D350-636-012

*NEV-PA*

280



QC

Quality Control

QC21- Final Inspection - Work Order Release

0.00

Memo

0.00

*Paul 6/2/10**MF 10-7-14*

W/O:		WORK ORDER CHANGES						
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Work Order ID: 59371

Parent Item: D350-636-012

Parent Item Name: Skidtube RH

Comments: IPP Rev: I ☐ 02.09.25 ☐ Rearranged procedure steps ☐ KJ ☐  
 IPP Rev: J 06-03-29 As per Rev D EC  
 IPP Rev: K 06-07.13 As per dsi9343 EC  
 IPP Rev: L 07-07-28 Added SS Wearplates (Rev E) JLM Verified By: EC

Start Date: 6/2/2010

Required Date: 6/9/2010

Start Qty: 1.00

Required Qty: 1.00

ALS4-1032-225

Purchased No

220

Each

7,062.000

38

38

Insert

## Location

## Loc Qty

## Loc Code

PK011

7062

7062

110768

AN3C5A

Purchased No

230

Each

923.0000

34

34

Bolt

## Location

## Loc Qty

## Loc Code

ST350

825

114330

125

114523

200

114808

500

ST351

98

113121

10

114108

45

114181

43

AN3C6A

Purchased No

230

Each

565.0000

4

4

BOLT

## Location

## Loc Qty

## Loc Code

ST351

565

111982

565

YU YU 10/07/13

X38 YU 10/07/13

1115015 X34 YU 10/07/13

W/O:		WORK ORDER CHANGES						
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 IPP Rev: J 06-03-29 As per Rev D EC  
 IPP Rev: K 06-07.13 As per dsi9343 EC  
 IPP Rev: L 07-07-28 Added SS Wearplates (Rev E) JLM Verified By: EC

Start Date: 6/2/2010

Required Date: 6/9/2010

Start Qty: 1.00

Required Qty: 1.00

AN6C44A



BOLT

Purchased No 230 Each 151.0000

4 4

## Location

## Loc Qty

## Loc Code

FG 2  
 103964 2  
 ST344 149  
 111649 2  
 114455 47  
 114653 50  
 114784 50

AN8C35A



BOLT

Purchased No 230 Each 56.0000

1 1

## Location

## Loc Qty

## Loc Code

FP 6  
 110847 6  
 ST346 50  
 11442 50

AN960C10L



washer

NAS1149C0332

Purchased No 230 Each 0.0000

38 38

M115000

XJ M 10/07/13

XI M 10/07/13

X38 10/07/13

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Shop Packet Print

Page 2

W/O:		WORK ORDER CHANGES					
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Work Order ID: 59371

Parent Item: D350-636-012

Parent Item Name: Skidtube RH

Comments: IPP Rev: I ☐ 02.09.25 ☐ Rearranged procedure steps ☐ KJ ☐  
 IPP Rev: J 06-03-29 As per Rev D EC  
 IPP Rev: K 06-07.13 As per dsi9343 EC  
 IPP Rev: L 07-07-28 Added SS Wearplates (Rev E) JLM Verified By: EC

Start Date: 6/2/2010

Required Date: 6/9/2010

Start Qty: 1.00

Required Qty: 1.00

AN960C816L

Purchased No 230 Each

106.0000

1

1

WASHER

## Location

## Loc Qty

## Loc Code

ST348

106

10584

100

111424

6

D2745

Manufactured No

230

Each

146.0000

8

8

Bushing

## Location

## Loc Qty

## Loc Code

ST023

146

52311

69

57914

77

D3488-042

Manufactured No

230

Each

19.0000

1

Blade Fitting Assembly, RH

## Location

## Loc Qty

## Loc Code

FP008

19

53918

19

D3492-041

Manufactured No

230

Each

94.0000

8

8

Plug Assembly

## Location

## Loc Qty

## Loc Code

FP013

94

57915

30

58180

60

59189

4

59420

X 4

10/07/13

X 4

10/07/13

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W/O:		WORK ORDER CHANGES						
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector	

Part No: \_\_\_\_\_ PAR #: \_\_\_\_\_ Fault Category: \_\_\_\_\_ NCR: Yes No DQA: \_\_\_\_\_ Date: \_\_\_\_\_

Resolution: \_\_\_\_\_ Disposition: \_\_\_\_\_ QA: N/C Closed: \_\_\_\_\_ Date: \_\_\_\_\_

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

**NOTE:** Date & initial all entries

# Picklist Print

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Work Order ID: 59371

Parent Item: D350-636-012

Parent Item Name: Skidtube RH

Comments: IPP Rev: I 02.09.25 ☐ Rearranged procedure steps ☐ KJ ☐  
 IPP Rev: J 06-03-29 As per Rev D EC  
 IPP Rev: K 06-07.13 As per dsi9343 EC  
 IPP Rev: L 07-07-28 Added SS Wearplates (Rev E) JLM Verified By: EC

Start Date: 6/2/2010

Required Date: 6/9/2010

Start Qty: 1.00

Required Qty: 1.00

D3492-043

Manufactured No

230

Each

57.0000

8

8



Plug Assembly

## Location

## Loc Qty

## Loc Code

FP

2

B59421

54682

2

FP013

55

57916

51

59190

4

D3535-25

Manufactured No

230

Each

13.0000

1

1



Wearshoe

## Location

## Loc Qty

## Loc Code

FP18

13

B59150

57943

13

D3536-25

Manufactured No

230

Each

32.0000

1

1



Gasket

## Location

## Loc Qty

## Loc Code

FP12

32

~~B58683~~

57944

6

58820

26

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W/O:		WORK ORDER CHANGES						
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector	

Part No: \_\_\_\_\_ PAR #: \_\_\_\_\_ Fault Category: \_\_\_\_\_ NCR: Yes No DQA: \_\_\_\_\_ Date: \_\_\_\_\_

Resolution: \_\_\_\_\_ Disposition: \_\_\_\_\_ QA: N/C Closed: \_\_\_\_\_ Date: \_\_\_\_\_

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

**NOTE:** Date & initial all entries

# Picklist Print

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Work Order ID: 59371

Parent Item: D350-636-012

Parent Item Name: Skidtube RH

Comments: IPP Rev: I ☐ 02.09.25 ☐ Rearranged procedure steps ☐ KJ ☐  
 IPP Rev: J 06-03-29 As per Rev D EC  
 IPP Rev: K 06-07.13 As per dsi9343 EC  
 IPP Rev: L 07-07-28 Added SS Wearplates (Rev E) JLM Verified By: EC

Start Date: 6/2/2010

Required Date: 6/9/2010

Start Qty: 1.00

Required Qty: 1.00

D3537-1



Wearpad

Manufactured No 230 Each 11.0000 3 3

## Location

## Loc Qty

## Loc Code

FP 1  
 55465 1  
 FP17 10  
 57713 10

1359710

1359593

D3631-1



Washer

Manufactured No 230 Each 206.0000 8 8

## Location

## Loc Qty

## Loc Code

ST076 206  
 52693 206

134388

D3672-1



Phenolic Washer

Manufactured No 230 Each 1,367.000 4 4

## Location

## Loc Qty

## Loc Code

ST077 1367  
 51674 367  
 52505 1000

134388

D3791-1



Wearplate

Manufactured No 230 Each 5.0000 1 1

## Location

## Loc Qty

## Loc Code

FP17 5  
 56299 5

1358906

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Page 5

W/O:		WORK ORDER CHANGES						
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector	

Part No: \_\_\_\_\_ PAR #: \_\_\_\_\_ Fault Category: \_\_\_\_\_ NCR: Yes No DQA: \_\_\_\_\_ Date: \_\_\_\_\_

Resolution: \_\_\_\_\_ Disposition: \_\_\_\_\_ QA: N/C Closed: \_\_\_\_\_ Date: \_\_\_\_\_

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

NOTE: Date & initial all entries

# Picklist Print

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Work Order ID: 59371

Parent Item: D350-636-012

Parent Item Name: Skidtube RH

Comments: IPP Rev:I 02.09.25 Rearranged procedure steps KJ  
 IPP Rev:J 06-03-29 As per Rev D EC  
 IPP Rev:K 06-07.13 As per dsi9343 EC  
 IPP Rev:L 07-07-28 Added SS Wearplates(Rev E) JLM Verified By:EC

Start Date: 6/2/2010

Required Date: 6/9/2010

Start Qty: 1.00

Required Qty: 1.00

D3793-1



Manufactured No

230

Each

10.0000

1

1

Wearshoe

## Location

## Loc Qty

## Loc Code

FP18

10

56300

1

57945

9

D3793-3



Manufactured No

230

Each

27.0000

1

1

Wearshoe

## Location

## Loc Qty

## Loc Code

FP18

16

59152

16

FP19

11

57947

11

D3794-1



Manufactured No

230

Each

32.0000

1

1

Gasket

## Location

## Loc Qty

## Loc Code

FP010

26

57942

26

FP014

6

57537

6

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W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: \_\_\_\_\_ PAR #: \_\_\_\_\_ Fault Category: \_\_\_\_\_ NCR: Yes No DQA: \_\_\_\_\_ Date: \_\_\_\_\_

Resolution: \_\_\_\_\_ Disposition: \_\_\_\_\_ QA: N/C Closed: \_\_\_\_\_ Date: \_\_\_\_\_

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

**NOTE:** Date & initial all entries



# Picklist Print

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Work Order ID: 59371

Parent Item: D350-636-012

Parent Item Name: Skidtube RH

Comments: IPP Rev: I 02.09.25 Rearranged procedure steps KJ  
 IPP Rev: J 06-03-29 As per Rev D EC  
 IPP Rev: K 06-07.13 As per dsi9343 EC  
 IPP Rev: L 07-07-28 Added SS Wearplates (Rev E) JLM Verified By: EC

Start Date: 6/2/2010

Required Date: 6/9/2010

Start Qty: 1.00

Required Qty: 1.00

D3794-3

Manufactured No

230 Each

14.0000

1

1



Gasket

Location

Loc Qty

Loc Code

FP18

14

56066

14

MS21043-6

Purchased No

230 Each

826.0000

4

4



NUT

Location

Loc Qty

Loc Code

ST301

826

112314

826

MS21083C8

Purchased No

230 Each

41.0000

1

1



NUT

Location

Loc Qty

Loc Code

ST303

41

113845

11

114523

30

NAS1611-010

Purchased No

230 Each

302.0000

8

8



O-RING

Location

Loc Qty

Loc Code

FP

302

110715

100

110915

202

PTO = 3

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# Dart Aerospace Ltd

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector
10/07/13	230	Replace NAS 1611 -010 "ORINGS" with D2594-3 / B59358 "ORINGS"	MJ	10/07/13	X8	<i>[Signature]</i>	S 10/07/13

Part No: \_\_\_\_\_ PAR #: \_\_\_\_\_ Fault Category: \_\_\_\_\_ NCR: Yes No DQA: \_\_\_\_\_ Date: \_\_\_\_\_

Resolution: \_\_\_\_\_ Disposition: \_\_\_\_\_ QA: N/C Closed: \_\_\_\_\_ Date: \_\_\_\_\_

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

NOTE: Date & initial all entries

# Picklist Print

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Work Order ID: 59371

Parent Item: D350-636-012

Parent Item Name: Skidtube RH

Comments: IPP Rev: I 02.09.25 Rearranged procedure steps KJ  
 IPP Rev: J 06-03-29 As per Rev D EC  
 IPP Rev: K 06-07.13 As per dsi9343 EC  
 IPP Rev: L 07-07-28 Added SS Wearplates (Rev E) JLM Verified By: EC

Start Date: 6/2/2010

Required Date: 6/9/2010

Start Qty: 1.00

Required Qty: 1.00

NAS1611-013

Purchased No 230 Each

219.0000 8



O-RING

## Location

## Loc Qty

## Loc Code

FP

219

114451  
114496

181  
38

AN8C21A

Purchased No 250 Each

111.0000 2



BOLT

## Location

## Loc Qty

## Loc Code

ST345

111

111605  
113558  
114653

21  
50  
40

AN960C816L

Purchased No 250 Each

106.0000 1



WASHER

## Location

## Loc Qty

## Loc Code

ST348

106

110584  
111424

100  
6

D2741

Manufactured No 250 Each

27.0000 1



Blade, 350 Skidtube

## Location

## Loc Qty

## Loc Code

ST466

27

55905

27

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8 24 10 102 13  
 2  
 16.7 9 8  
 2  
 2  
 1  
 16.7 9 8  
 1

W/O:		WORK ORDER CHANGES						
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector	

Part No: \_\_\_\_\_ PAR #: \_\_\_\_\_ Fault Category: \_\_\_\_\_ NCR: Yes No DQA: \_\_\_\_\_ Date: \_\_\_\_\_

Resolution: \_\_\_\_\_ Disposition: \_\_\_\_\_ QA: N/C Closed: \_\_\_\_\_ Date: \_\_\_\_\_

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
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**NOTE:** Date & initial all entries

# Picklist Print

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Work Order ID: 59371

Parent Item: D350-636-012

Parent Item Name: Skidtube RH

Comments: IPP Rev: I ☐ 02.09.25 ☐ Rearranged procedure steps ☐ KJ ☐  
 IPP Rev: J 06-03-29 As per Rev D EC  
 IPP Rev: K 06-07.13 As per dsi9343 EC  
 IPP Rev: L 07-07-28 Added SS Wearplates (Rev E) JLM Verified By: EC

Start Date: 6/2/2010

Required Date: 6/9/2010

Start Qty: 1.00

Required Qty: 1.00

D3493-1 Manufactured No 250 Each 33.0000 2 2



Washer

Location	Loc Qty	Loc Code
ST065	33	
57825	33	

33.0000 2 2  
 B59127 10.7.9 SF

D3532-1 Manufactured No 250 Each 25.0000 2 2



Spacer

Location	Loc Qty	Loc Code
ST068	25	
52321	25	

25.0000 2 2  
 B59426 10.7.9 SF

D3672-13 Purchased No 250 Each 894.0000 2 2



Phenolic Washer

Location	Loc Qty	Loc Code
ST077	894	
54363	894	

894.0000 2 2  
 10.7.9 SF

MS21083C8 Purchased No 250 Each 41.0000 1 2



NUT

Location	Loc Qty	Loc Code
ST303	41	
113845	11	
114523	30	

41.0000 1 2  
 M114934 10.7.9 SF

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: \_\_\_\_\_ PAR #: \_\_\_\_\_ Fault Category: \_\_\_\_\_ NCR: Yes No DQA: \_\_\_\_\_ Date: \_\_\_\_\_

Resolution: \_\_\_\_\_ Disposition: \_\_\_\_\_ QA: N/C Closed: \_\_\_\_\_ Date: \_\_\_\_\_

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

**NOTE:** Date & initial all entries

# Picklist Print

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Work Order ID: 59371

Parent Item: D350-636-012

Parent Item Name: Skidtube RH

Comments: IPP Rev: I 02.09.25 Rearranged procedure steps KJ  
 IPP Rev: J 06-03-29 As per Rev D EC  
 IPP Rev: K 06-07.13 As per dsi9343 EC  
 IPP Rev: L 07-07-28 Added SS Wearplates (Rev E) JLM Verified By: EC

Start Date: 6/2/2010

Required Date: 6/9/2010

Start Qty: 1.00

Required Qty: 1.00

D2600-3-BENT

Manufactured No

110 Each

13.0000

1

1



Extrusion Bent

## Location

## Loc Qty

## Loc Code

LG

13

58903

13

D2744

Manufactured No

110 Each

13.0000

1



Cap

## Location

## Loc Qty

## Loc Code

LG

13

51922

13

D2739

Manufactured No

160 Each

7.0000

1



350 I Beam

## Location

## Loc Qty

## Loc Code

LG

7

57948

1

58213

1

58904

5

D2743

Manufactured No

160 Each

57.0000

8



Crossbolt Spacer

## Location

## Loc Qty

## Loc Code

LG

57

50281

10

52310

24

57953

23

B 59111

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Page 10

BE 10/06/11

BE 10/06/14

B5940 D 11/06/15

B BE 10/06/16

W/O:		WORK ORDER CHANGES						
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector	

Part No: \_\_\_\_\_ PAR #: \_\_\_\_\_ Fault Category: \_\_\_\_\_ NCR: Yes No DQA: \_\_\_\_\_ Date: \_\_\_\_\_

Resolution: \_\_\_\_\_ Disposition: \_\_\_\_\_ QA: N/C Closed: \_\_\_\_\_ Date: \_\_\_\_\_

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			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

**NOTE:** Date & initial all entries



# Picklist Print

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Work Order ID: 59371



Parent Item: D350-636-012



Parent Item Name: Skidtube RH

Start Date: 6/2/2010

Required Date: 6/9/2010

Comments:

IPP Rev: I ☐ 02.09.25 ☐ Rearranged procedure steps ☐ KJ ☐  
 IPP Rev: J 06-03-29 As per Rev D EC  
 IPP Rev: K 06-07.13 As per dsi9343 EC  
 IPP Rev: L 07-07-28 Added SS Wearplates (Rev E) JLM Verified By: EC

Start Qty: 1.00

Required Qty: 1.00

D3490-3 Manufactured No 160 Each 66.0000 4 4



Cross Bolt Spacer

Location

Loc Qty

Loc Code

LG	66
57918	6
59229	60



D3490-1 Manufactured No 160 Each 56.0000 4 4



Cross Bolt Spacer

Location

Loc Qty

Loc Code

LG	56
59228	56



4 BE 10/06/10

4 BE 10/06/10

**Dart Aerospace Ltd**

W/O:		WORK ORDER CHANGES						
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector	

Part No: \_\_\_\_\_ PAR #: \_\_\_\_\_ Fault Category: \_\_\_\_\_ NCR: Yes No DQA \_\_\_\_\_ Date: \_\_\_\_\_

Resolution: \_\_\_\_\_ Disposition: \_\_\_\_\_ QA: N/C Closed: \_\_\_\_\_ Date: \_\_\_\_\_

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

**NOTE:** Date & initial all entries

8

7

6

5

4

3

2

1

QTY -041	QTY -042	QTY -043	QTY -044	PART NUMBER	DESCRIPTION
X				D2750-041	350 SKIDTUBE ASSEMBLY, LH
	X			D2750-042	350 SKIDTUBE ASSEMBLY, RH
		X		D2750-043	350 SKIDTUBE ASSEMBLY, LH
			X	D2750-044	350 SKIDTUBE ASSEMBLY, RH
1	1	1	1	D2739	WEB
8	8	8	8	D2743	SPACER
1	1	1	1	D2744	CAP
8	8	8	8	D2745	BUSHING
1				D2750-1	SKIDTUBE WELDMENT, LH
	1			D2750-2	SKIDTUBE WELDMENT, RH
		1		D2750-3	SKIDTUBE WELDMENT, LH
			1	D2750-4	SKIDTUBE WELDMENT, RH
1		1		D3488-041	BLADE FITTING, LH
	1		1	D3488-042	BLADE FITTING, RH
4	4	4	4	D3490-1	SPACER
4	4			D3490-3	SPACER
		4	4	D3490-5	SPACER
8	8	8	8	D3492-041	PLUG ASSEMBLY
8	8			D3492-043	PLUG ASSEMBLY
		8	8	D3492-045	PLUG ASSEMBLY
1	1	1	1	D3535-25	WEARSHOE
1	1	1	1	D3536-25	GASKET
3	3	3	3	D3537-1	WEARPAD
8	8	8	8	D3631-1	WASHER
1	1	1	1	D3791-1	WEARPLATE
1	1	1	1	D3793-1	WEARSHOE
1	1	1	1	D3793-3	WEARSHOE
1	1	1	1	D3794-1	GASKET
1	1	1	1	D3794-3	GASKET
38	38	38	38	ALS4-1032-225	INSERT (OR ALS7-1032-225, AKS4-1032-225, AELS-1032-225)
34	34	34	34	AN3C5A	BOLT
4	4	4	4	AN3C6A	BOLT
4	4	4	4	AN6C44A	BOLT
1	1	1	1	AN8C35A	BOLT
38	38	38	38	AN960C10L	WASHER
1	1	1	1	AN960C816L	WASHER
4	4	4	4	MS21043-6	NUT
1	1	1	1	MS21083C8	NUT
4	4	4	4	NAS1515H3L	WASHER

## GENERAL NOTES:

- 1) MATERIAL: MAKE D2750-1/2-3/4 FROM D2600-3 EXTRUSION (INITIAL LENGTH = 120.0).
- 2) FINISH:  
ACID ETCH, ALONDE ASSEMBLY PER DART QSI 005 4.1 PRIOR TO INSTALLING D2739 WEB.  
POWDER COAT WHITE (REF. 4.3.5.1) PER DART QSI 005 4.3  
BLACK ANTI-SKID PAINT AS INDICATED TO 1.0 ABOVE SKIDTUBE CENTER-LINE PER DART 005 4.4 (OPTIONAL).
- 3) TOLERANCES: PER DART QSI 018 UNLESS OTHERWISE NOTED
- 4) UNITS: INCHES UNLESS OTHERWISE NOTED
- 5) BREAK SHARP EDGES: N/A
- 6) IDENTIFICATION: N/A
- 7) WEIGHT: D2750-041/-042/-043/-044 = 26.5 LBS
- 8) WELD PER DART QSI 004
- 9) INSTALL ALS4-1032-225 INSERTS AFTER FINISH AS INDICATED. DRILL "F" SIZE HOLES (Ø0.297) FOR WEARSHOE INSERTS
- 10) FINAL CONFIGURATION SHOULD HAVE THE FOLLOWING MINIMUM MECHANICAL PROPERTIES:  
MINIMUM YIELD TENSILE STRENGTH = 35 KSI  
MINIMUM ULTIMATE TENSILE STRENGTH = 38 KSI
- 11) SPRAY INSIDE OF TUBE WITH A COAT OF LPS LABORATORIES "LPS-3" AFTER FINISH AND AFTER INSTALLATION OF INSERTS.  
COAT ALL EXPOSED FASTENERS WITH LPS LABORATORIES "LPS PROCYON" AFTER FINAL ASSEMBLY, CLEAN EXCESS OFF  
POWDER COATING WITH MEK DEGREASER.
- 12) SPACER AND PLUG INSTALLED SAME AS SECTION AJ-AJ EXCEPT HORIZONTAL
- 13) SPACER AND PLUG INSTALLED SAME AS SECTION AP-AP EXCEPT HORIZONTAL

SHOP COPY  
RETURN TO  
ENGINEERING  
UNCONTROLLED COPY  
SUBJECT TO AMENDMENT  
WITHOUT NOTICE  
WORK ORDER  
NO. 59371  
*BS 10-6-02*

RELEASED  
*6-27-02*

F	INCORPORATE DSI 9413; QTY (3) D3537-1 WAS QTY (5) (ZN C8-1); D3791-1/-3 REPLACES D3535-13/-35 (ZN C8-1); D3794-1/-3 REPLACES D3535-13/-35 (ZN B8-1); ADD D3791-1 (ZN C8-1); WEARSHOE HOLES UNDER FWD/AFT SADDLE REMOVED (8 PL). WEARSHOE HARDWARE QTY UPDATED (ZN B8-1); D3488-041/-042 HARDWARE UPDATED (ZN C1-8, 9, 10, 11); ADD NOTE 12 AND 13 (ZN A6-1); REASON: REF. NCR 08-043	PH	08.07.16
E	CHANGE TO STAINLESS STEEL WEARPLATES; ADD RUBBER GASKETS, CHANGE INSERTS; ADD D3631-1; REMOVE QTY (38) NAS1515H3L; REMOVE QTY (10) NAS1515H8L; REMOVE D2741; QTY (2) AN960C816; REMOVE QTY (2) MS21083C8	CB	07.05.17
D	ADD HOLES AND SPACERS FOR APICAL FLOATS; INCORPORATE DEC 9133/9157	PH	06.01.05
C	ADD D2750-3/D2750-4; INCORPORATE D2738 AND D2740	CP	98.11.18
B	CHANGE MS24694-S293 TO AN8-16A	CP	98.09.01
A	NEW ISSUE	DS	98.04.16
REV.	DESCRIPTION	BY	DATE
DESIGN			
DRAWN			
CHECKED			
MFG. APPR.			
APPROVED			
DE APPR.			
DATE	08.07.16		

DART AEROSPACE USA, INC.  
PORT HADLOCK, WA

DRAWING NO. REV. F  
D2750 SHEET 1 OF 11  
TITLE: SCALE  
350 SKIDTUBE ASSEMBLY NTS

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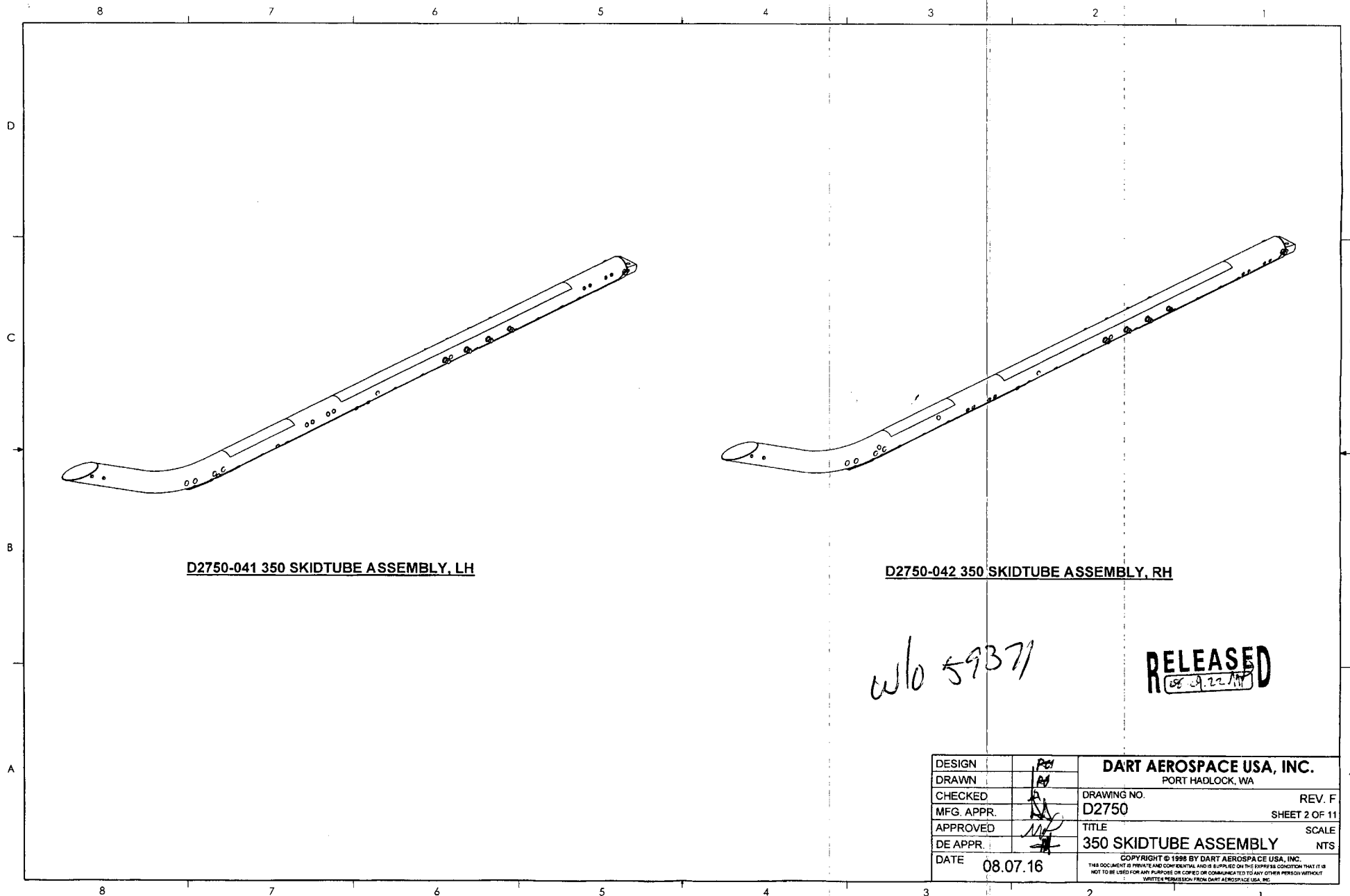
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DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: \_\_\_\_\_ PAR #: \_\_\_\_\_ Fault Category: \_\_\_\_\_ NCR: Yes No DQA: \_\_\_\_\_ Date: \_\_\_\_\_

Resolution: \_\_\_\_\_ Disposition: \_\_\_\_\_ QA: N/C Closed: \_\_\_\_\_ Date: \_\_\_\_\_

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

**NOTE:** Date & initial all entries



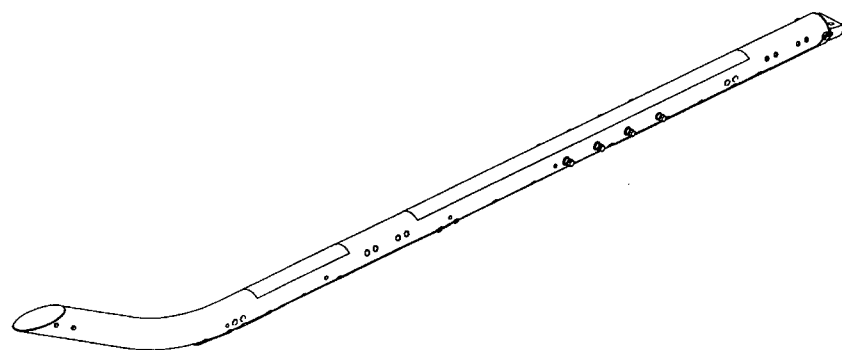
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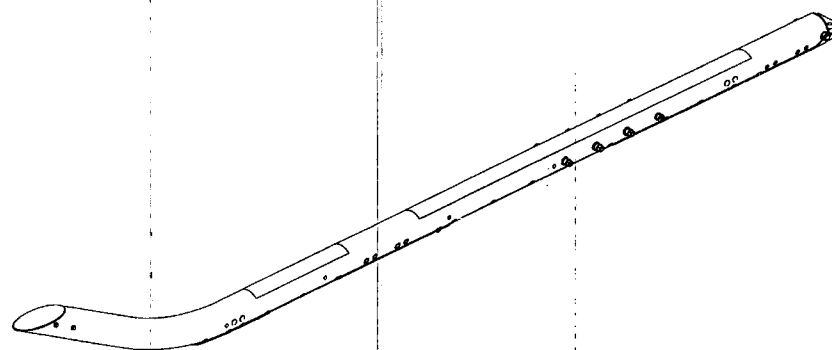
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DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

**NOTE:** Date & initial all entries



D2750-043 350 SKIDTUBE ASSEMBLY, LH



D2750-044 350 SKIDTUBE ASSEMBLY, RH

WLO 59371

**RELEASED**  
08-09-22/1/11

DESIGN		<b>DART AEROSPACE USA, INC.</b> PORT HADLOCK, WA DRAWING NO. <b>D2750</b> REV. F SHEET 3 OF 11 TITLE <b>350 SKIDTUBE ASSEMBLY</b> SCALE <b>NTS</b>
DRAWN		
CHECKED		
MFG. APPR.		
APPROVED		
DE APPR.		
DATE	08.07.16	COPYRIGHT © 1996 BY DART AEROSPACE USA, INC. THIS DOCUMENT IS PRIVATE AND CONFIDENTIAL AND IS SUPPLIED ON THE EXPRESS CONDITION THAT IT IS NOT TO BE USED FOR ANY PURPOSE OR COMMUNICATED TO ANY OTHER PERSON WITHOUT WRITTEN PERMISSION FROM DART AEROSPACE USA, INC.

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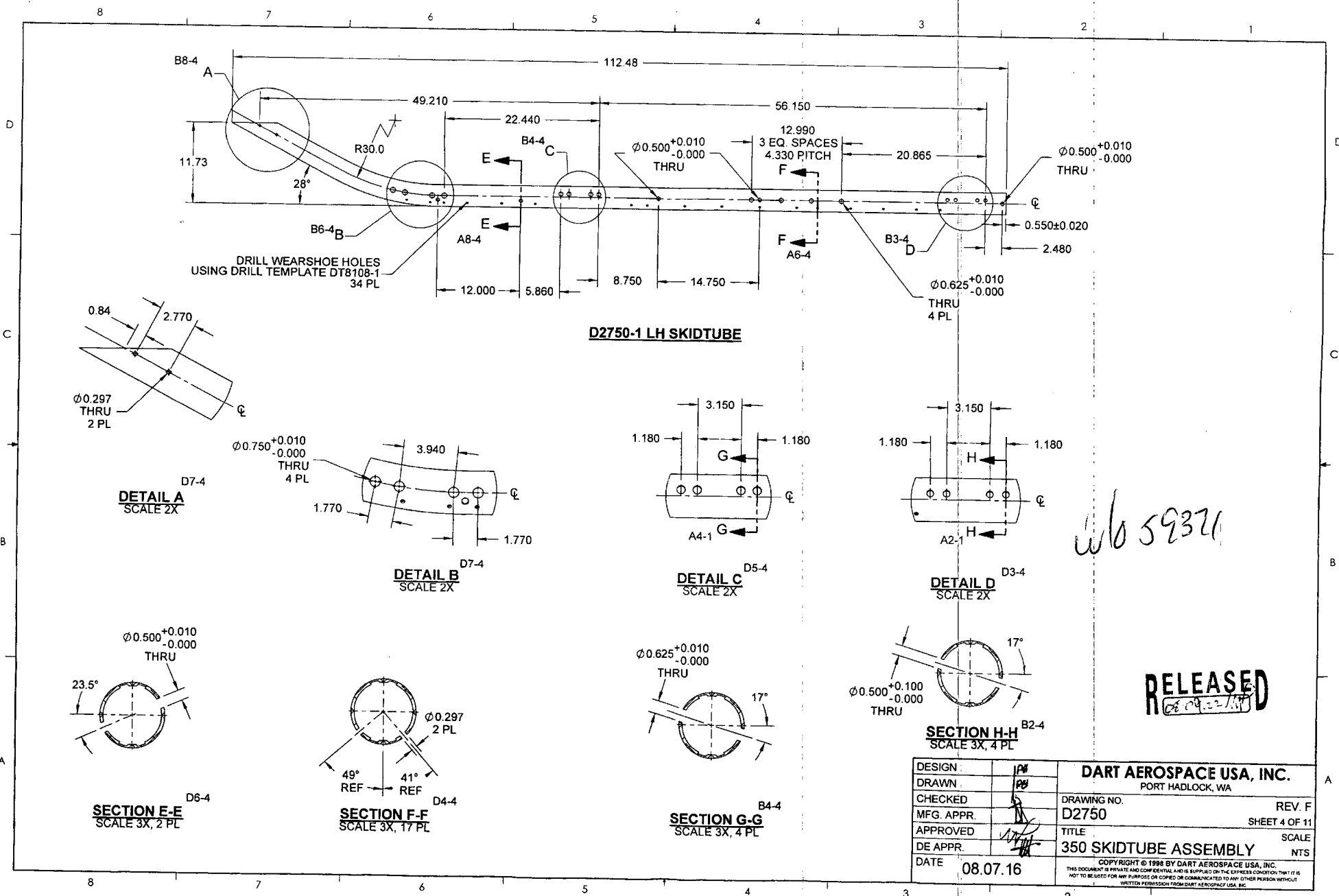
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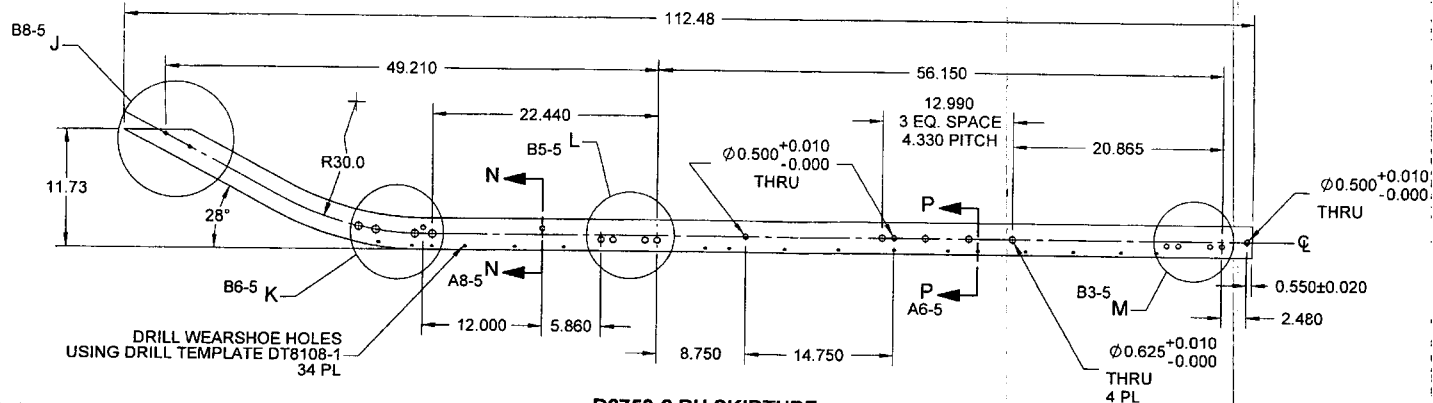
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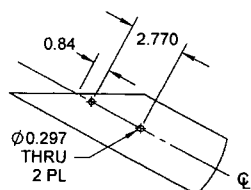
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			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

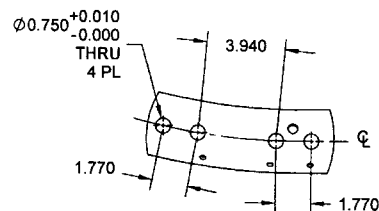
**NOTE:** Date & initial all entries



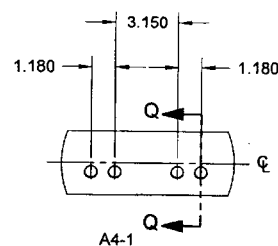
### D2750-2 RH SKIDTUBE



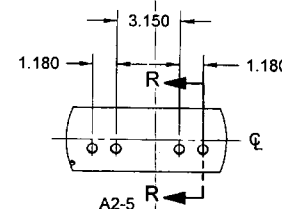
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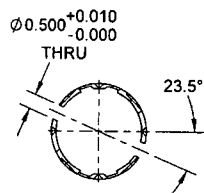
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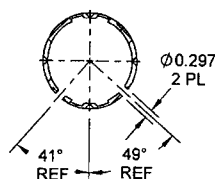
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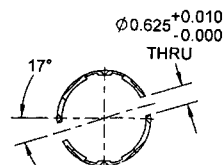
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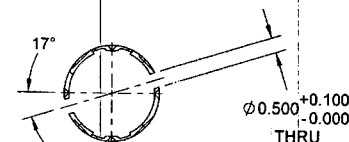
**SECTION N-N**  
SCALE 3X, 2 PL



**SECTION P-P**  
SCALE 3X, 17 PL



**SECTION Q-Q**  
SCALE 3X, 4 PL



**SECTION R-R**  
SCALE 3X, 4 PL

6059321

**RELEASED**

DESIGN	PEL	<b>DART AEROSPACE USA, INC.</b>	
DRAWN	PEL	PORT HADLOCK, VA	
CHECKED		DRAWING NO. <b>D2750</b>	REV. F
MFG. APPR.		TITLE <b>350 SKIDTUBE ASSEMBLY</b>	SHEET 5 OF 11
APPROVED		SCALE	NTS
DE APPR.			
DATE	08.07.16		

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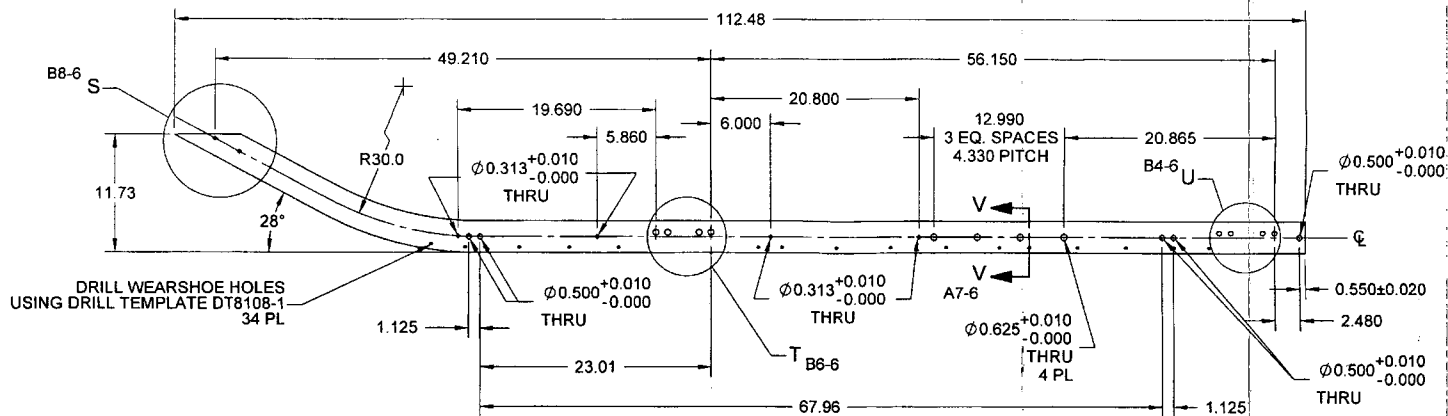
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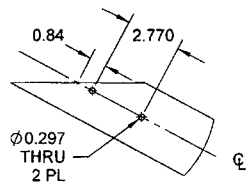
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			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

**NOTE:** Date & initial all entries

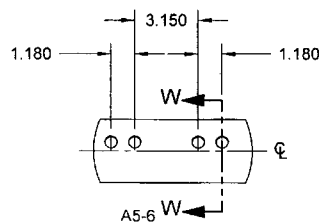
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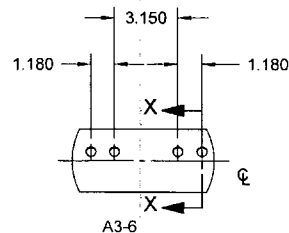
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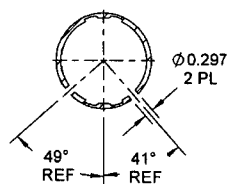
**DETAIL S**  
D8-6  
SCALE 2X



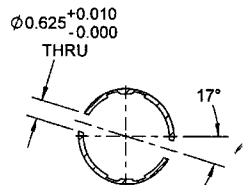
**DETAIL T**  
C5-6  
SCALE 2X



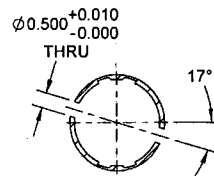
**DETAIL U**  
D3-6  
SCALE 2X



**SECTION V-V**  
C4-6  
SCALE 3X, 17 PL



**SECTION W-W**  
B6-6  
SCALE 3X, 4 PL



**SECTION X-X**  
B4-6  
SCALE 3X, 4 PL

w/o 59371

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08.07.16

DESIGN		<b>DART AEROSPACE USA, INC.</b>	
DRAWN		PORT HADLOCK, WA	
CHECKED		DRAWING NO. <b>D2750</b>	REV. F
MFG. APPR.			SHEET 6 OF 11
APPROVED		TITLE	SCALE
DE APPR.		<b>350 SKIDTUBE ASSEMBLY</b>	NTS
DATE	<b>08.07.16</b>	<small>COPYRIGHT © 1998 BY DART AEROSPACE USA, INC. THIS DOCUMENT IS PRIVATE AND CONFIDENTIAL AND IS SUPPLIED ON THE EXPRESS CONDITION THAT IT IS NOT TO BE USED FOR ANY PURPOSE OR COPIED OR COMMUNICATED TO ANY OTHER PERSON WITHOUT WRITTEN PERMISSION FROM DART AEROSPACE USA, INC.</small>	

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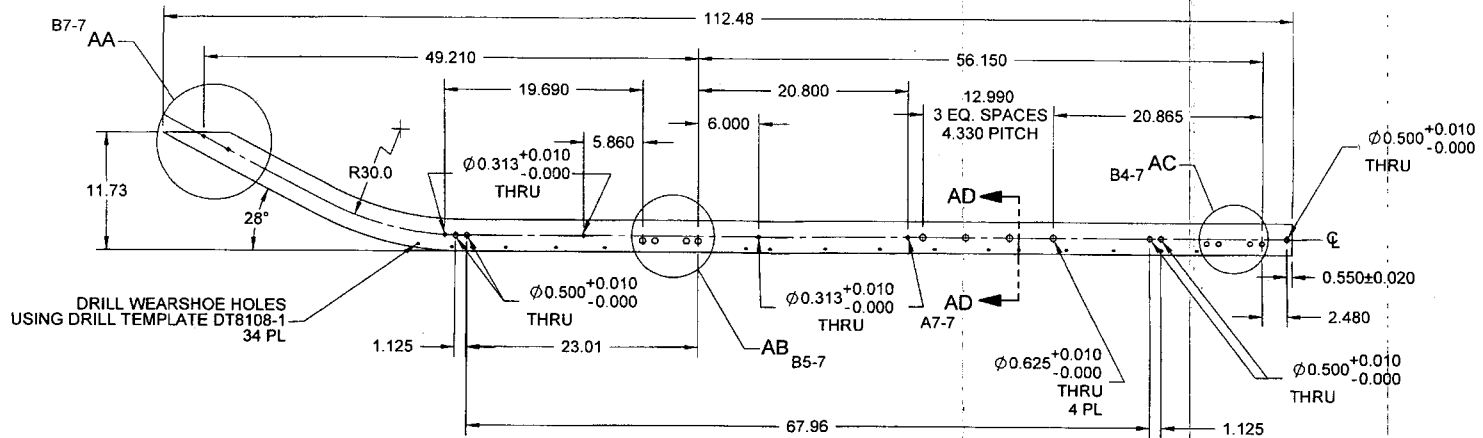
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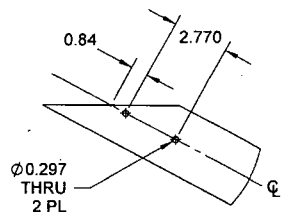
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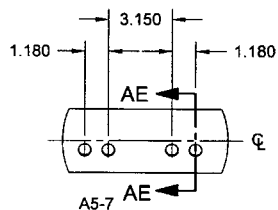
**NOTE:** Date & initial all entries



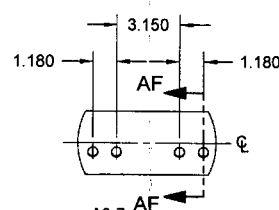
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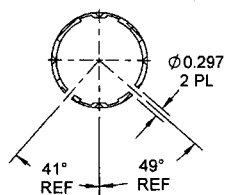
**DETAIL AA**  
SCALE 2X



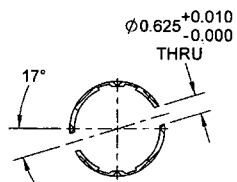
**DETAIL AB**  
SCALE 2X



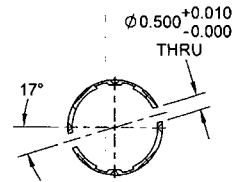
**DETAIL AC**  
SCALE 2X



**SECTION AD-AD**  
SCALE 3X, 17 PL



**SECTION AE-AE**  
SCALE 3X, 4 PL



**SECTION AF-AF**  
SCALE 3X, 4 PL

wb 59371

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DESIGN		<b>DART AEROSPACE USA, INC.</b>
DRAWN		PORT HADLOCK, WA
CHECKED		DRAWING NO. <b>D2750</b>
MFG. APPR.		REV. F
APPROVED		SHEET 7 OF 11
DE APPR.		TITLE <b>350 SKIDTUBE ASSEMBLY</b>
DATE	<b>08.07.16</b>	SCALE <b>NTS</b>

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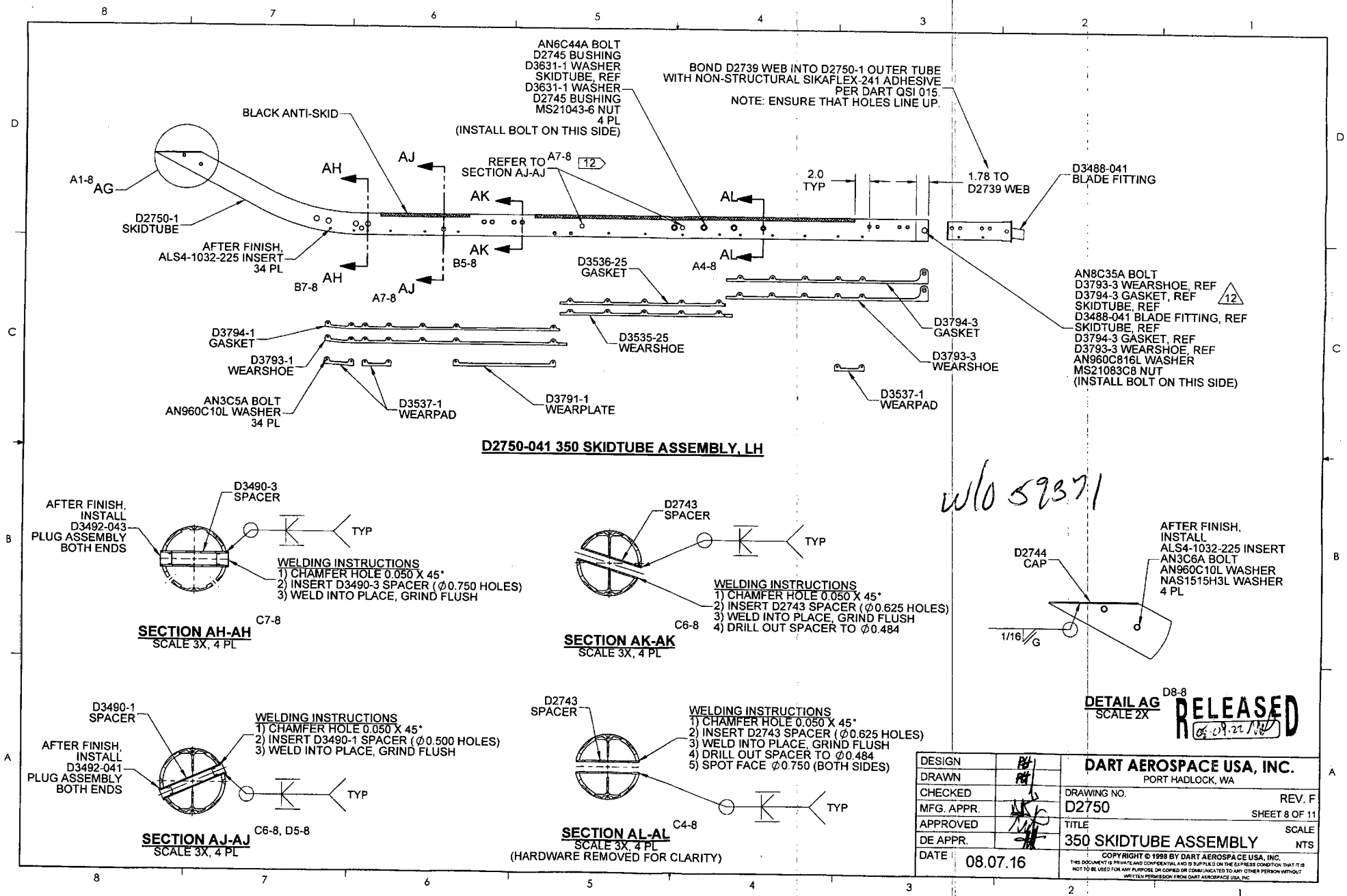
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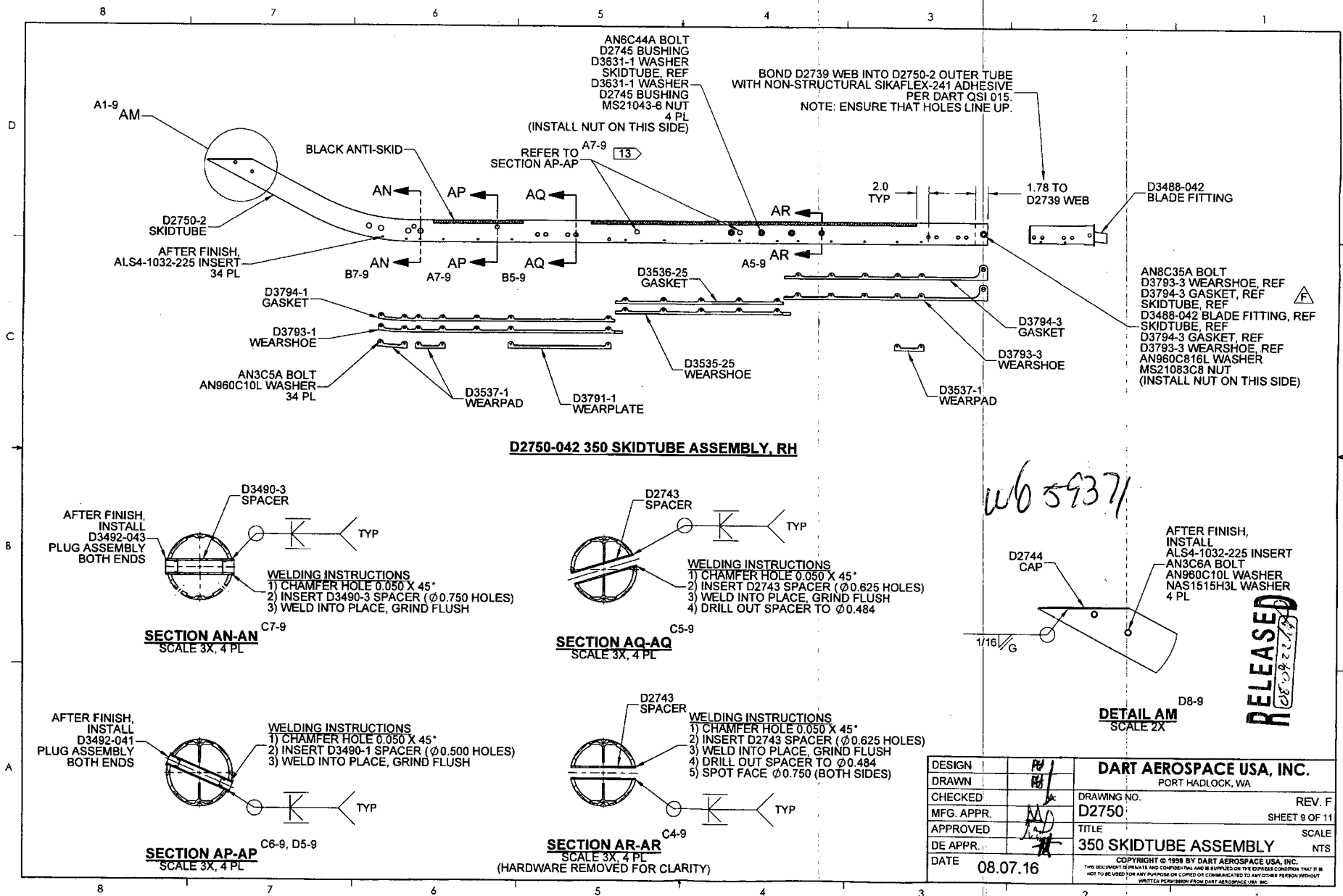
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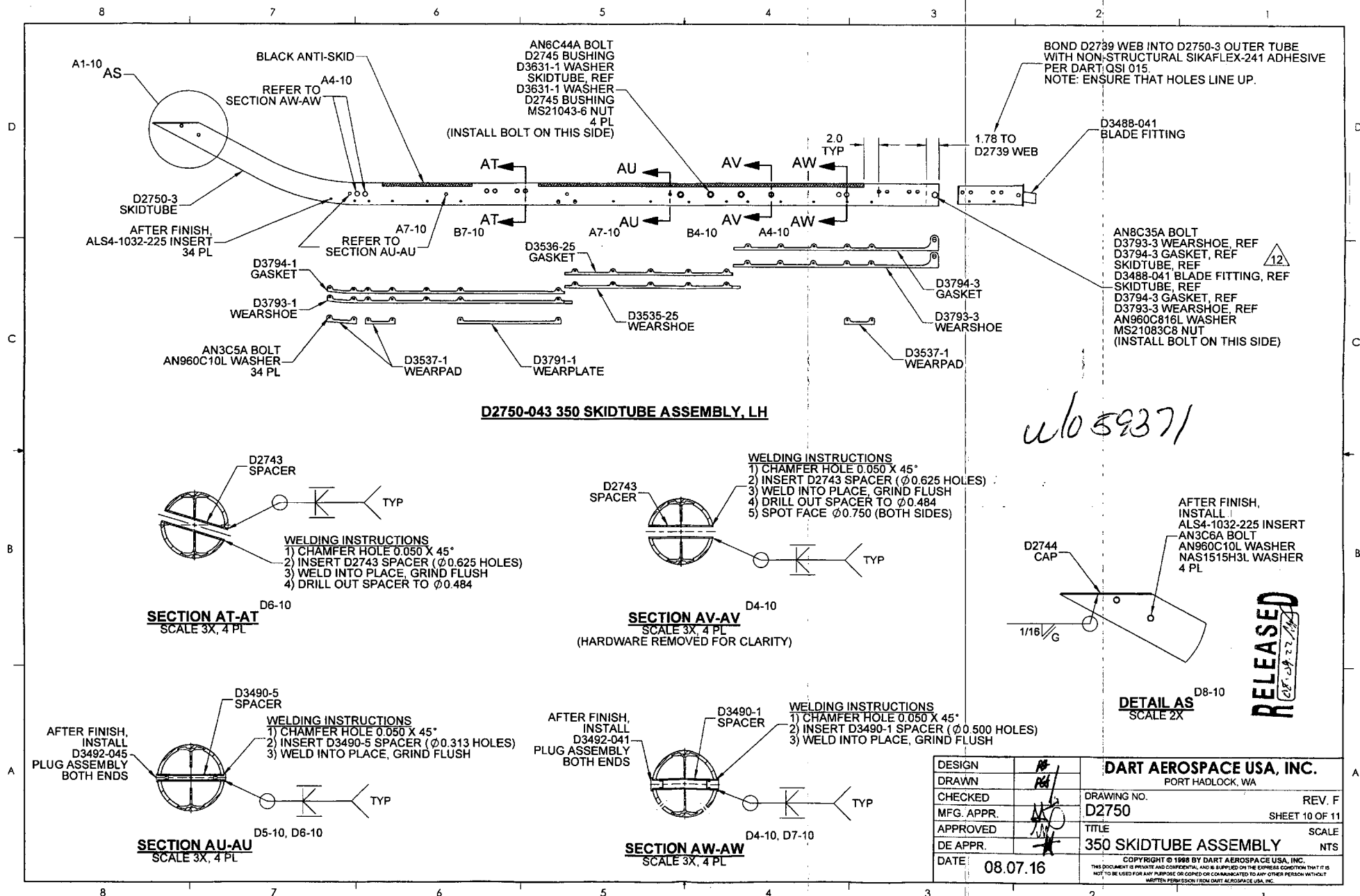
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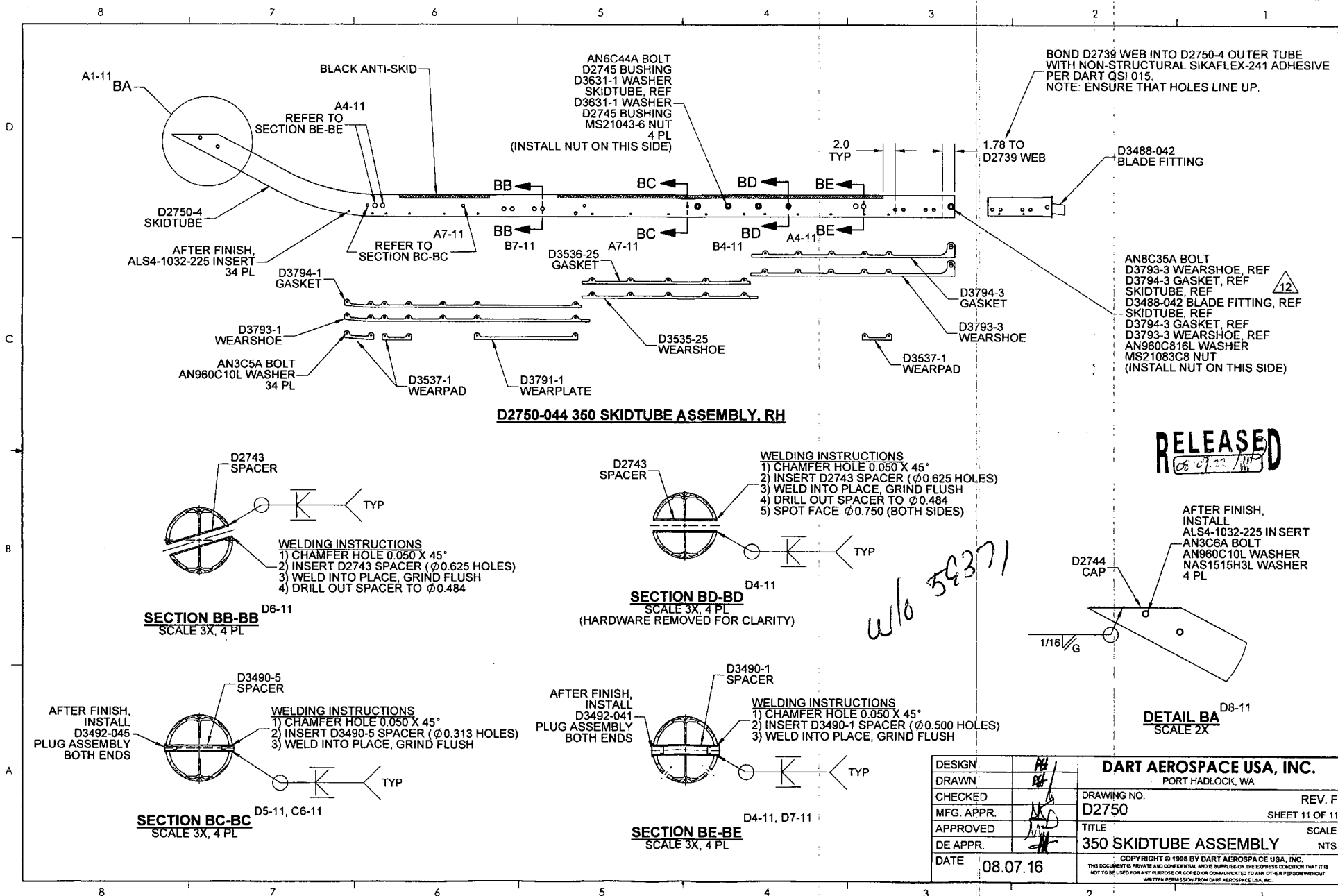
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			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

**NOTE:** Date & initial all entries



NO. 234

AWS D17.1.2001  
QUALIFICATION TEST RECORD

Name: Barclay Elliott  
Job number: 59818  
Part number: D350-626-011  
Description: 320 skid tube  
Welding Process: Tig ☒ Mig ☐  
Base material: Aluminium  
Current: AC ☒ DC ☐

TEST REQUIREMENTS AND RESULTS

Visual:  
Penetration:

pass ☒ fail ☐  
pass ☒ fail ☐

UNACCEPTABLE

Cracks:  
Undercut:  
Pin holes:  
Overlap (cold lap)  
Porosity (surface):  
Coloration:

pass ☒ fail ☐  
pass ☒ fail ☐  
pass ☒ fail ☐  
pass ☒ fail ☐  
pass ☒ fail ☐  
pass ☒ fail ☐

Qualifier P. D. A.

Date of Test Coupon 10-06-21

Welder Barclay Elliott

Date of Test Coupon 10-06-21

The above named individual is qualified in accordance with AWS D17.1.2001 to weld

Order ID 59371

Wednesday, June 02, 2010 1:19:40 PM

Page 1

Item ID: D350-636-012

Accept

Revision ID:

Item Name: Skidtube RH

Start Date: 6/2/2010 Start Qty: 1.00

Required Date: 6/9/2010 Req'd Qty: 1.00

Reference:

Approvals:

Process Plan:

Date: 10/6/08

Tooling:

Date:

QC:

Date:

SPC (Y/N):

Date:

Run Start

Stop

Sequence ID/  
Work Center ID

Operation  
Description

Set Up/  
Run Hours

Tool ID

Tool #

Plan  
Code

Accept  
Qty

Reject  
Qty

Reject  
Number

Insp.  
Stamp

Draw Nbr

Revision Nbr

D2750

Rev F

100

0.00



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